emerged during the following November. The Lancashire-collected larvae were initially considered to be those of the Northern Winter Moth *O. fagata* (L.). All of the insects that emerged were morphologically female (i.e., all were wingless).

Majerus (2002. *Moths*. New Naturalist Series. Harper Collins) discusses two mechanisms whereby insect populations can display female bias. In one case (e.g. Psychidae) reproduction is by parthenogenesis, resulting in only daughters being produced. The other mechanism involves the ability of certain bacteria to change genetic males into females, presumably via some gene repression mechanism (e.g. *Wolbachia* bacteria in the Asian Corn Borer, *Ostrinia furnacalis* Guenée). The advantage to the bacterium in this case lies in the fact that it is only transmitted to the next moth generation in the cytoplasm of eggs, not in sperm.

Each of our larval batches were reared together in enclosed containers and it is tempting to speculate whether an infectious agent may have been involved in this case, as any infection might be more likely to spread between individual specimens under captive conditions. Whatever the mechanism, it is reasonable to conclude that the phenomenon of female bias may be more prevalent than hitherto assumed among the Lepidoptera, especially in view of the fact that in many species bred in captivity the sex of the offspring is not always considered, as the male-female differences are not as clear cut as in the case of *O. brumata*.— DAFYDD LEWIS, 186 Lower Road, Bookham, Surrey KT23 4AT (E-mail: dafydd_lewis@btopenworld.com) and BEN SMART, 28 Redland Crescent, Chorlton, Manchester, Greater Manchester M21 8DL (E-mail: kathben@chorlton99.fsnet.co.uk).

Some Early Records of *Pelophila borealis* Paykull (Col.: Carabidae) on the Scottish Mainland

MacGowan and Owen (1993. *Ent.Rec.* **105**: 75-77) reported the occurrence of *Pelophila borealis* at Glen Affric, so far the only recent site for the mainland in Scotland.They refer to the distribution map of the species in the book by Scharff (1907. *European Animals: their Geological History and Geographical Distribution.* Constable, London) which marks the Clyde area of Scotland in addition to the well known areas in Ireland , the Orkneys and Shetland.

R. F. Scharff (b.1858, d.1934) who was Keeper in the Dublin National Museum (Praeger, 1934. Obituary. Robert Francis Scharff *Ir. Nat. J.* 5: 153-155), published extensive accounts on mainly the Irish invertebrate fauna (Praeger,1950. *Natural History of Ireland.* Collins, London), but appears not to have had a special interest in beetles. Where did he get the information for his distribution map? The question is immediately answered by reference to the standard list of Clyde Coleoptera by Fergusson (1901. Coleoptera, pp. 272-301, in *Fauna, Flora and Geology of the Clyde Area.* British Association for the Advancement of Science. Glasgow). Under *Pelophila borealis* Fergusson gives "Three at Clober (J. J. F. X. King). Mr King's

specimens, I understand, were named by Mr G. C. Champion, FZS". James King (b.1855, d.1933) had collected these beetles at Clober which is in "Stirlingshire on the Allander Water, half a mile NNW of Milngavie"at grid reference NS5475 (Groome, 1882. *Ordnance Gazetteer of Scotland*. Edinburgh) and exhibited the specimens at Anderson's University Buildings on 28 April 1873 (King, 1876. *Trans. Nat.Hist. Soc. Glasg*. ii, 217). In the preface to his book, Scharff acknowledges King as having provided information, so it seems reasonable to assume that it was this that was the basis for the distribution map. However, there is evidence of some earlier records of the beetle on mainland Scotland since Dawson (1854. *Geodephaga Britannica. A monograph of the carnivorous ground beetles indigenous to the British Isles*. London) states, "It is found in the Orkney Isles as well as in the West of Scotland, but the Irish examples are larger and more metallic than those found in Scotland". This is seemingly incontrovertible evidence in the literature, but are there any specimens to substantiate these old records?

Both the King and Fergusson collections are located in the Hunterian Museum at Glasgow, but unfortunately we were unable to find King's Clober specimens of *Pelophila*. All the specimens of this species, apart from one, originated from the classic Irish sites ex. coll. W. F. J. (William Frederick Johnson, b.1852, d.1934). The one exception was labelled "Nethy Bridge 2.9.11. J. J. F. X. King".

King (1914. *Scot. Nat*.1914: 46-47) records visiting this area in 1911 in the company of Col. J. W. Yerbury (b.1847, d.1927). In his manuscript field notebooks (preserved in the Hunterian Museum) he refers to being with Yerbury from at least 12-28 August 1911. On the last of these days mentioned he says 'saw Yerbury in the evening, had been ill with gout'. It was King's habit to visit an area for the entire summer vacation when he was freed from teaching at the Glasgow School of Art. In 1911, he arrived on Speyside on 19 June, based in Nethy Bridge and met up with T. G. Bishop (b.1846, d.1922), another Glasgow-based coleopterist, and H. StJ. K. Donisthorpe (b.1870, d.1951). Details in King's notebooks vary and apart from stating 'collected on Speyside' reveal no further information of the capture of *P. borealis* on the day before he left by the 'local Glasgow' train, Monday 3 September 1911.

In conclusion, we have presented the evidence so far available for the early records of *P. borealis*, which have previously been overlooked, from the two vice counties of Stirling (VC 86) and Easterness, (VC96), indicating a more widely dispersed distribution for the species in mainland Scotland. We thank the staff of the National Museums of Scotland, Chambers Street, Edinburgh, for the use of the *Scottish Insect Records Index*.— D. HUTCHINS, 12 Manse Road, Roslin, Midlothian EH25 9LF & E.G. HANCOCK, Hunterian Museum (Zoology), Graham Kerr Building, University of Glasgow G12 8QQ.